What is claimed is

1. A multi-beam color scanning device, comprising:

a multi-beam light source unit that emits a plurality of light beams having different wavelengths;

a first polygonal mirror that deflects the plurality of light beams emitted by said multi-beam light source unit to scan in a first predetermined direction;

an fθ optical system, the plurality of beams deflected by said first polygonal mirror passing through said fθ optical system;

a second polygonal mirror that deflects the plurality of light beams passed through said fθ optical system in a second predetermined direction which is perpendicular to the first predetermined direction, said second polygonal mirror deflecting the plurality of light beams by one line in the second predetermined direction at every scanning of the plurality of light beams in said first predetermined direction, the plurality of light beams scanning within a predetermined scanning area defined by deflection of said first polygonal mirror and said second polygonal mirror;

a light receiving unit that received the plurality of light beams reflected by an object located within the predetermined scanning area,

an operation system that obtains a three-dimensional

shape and color of the object based on output of said light receiving unit.

2. The multi-beam color scanning device according to claim 1, wherein said multi-beam light source unit includes at least first laser source, second laser source and third laser source that emit laser beams having different wavelengths.

3. The multi-beam color scanning device according to claim 2, wherein said operation system includes:

a direction detection system that detects a direction in which the plurality of laser beams proceed; and

an object surface position detection system that detects a distance to an object surface at a point on which the plurality of laser beams whose proceeding direction is detected are incident and reflected.

4. The multi-beam color scanning device according to claim 3, wherein said object surface position detection system includes a distance detection device that detects a distance between the light source unit to the surface of the object based on a time duration between emission of the light beams to reception of the reflected light beams.

5. The multi-beam color scanning device according to claim

1,

wherein said light receiving unit includes an area sensor, and

wherein said multi-beam color scanning device includes a collecting lens that converges light beams reflected by a surface of the object on said area sensor.

6. The multi-beam color scanning device according to claim 1, further comprising a beam splitter arranged on an optical path of the plurality of light beams between said multi-beam light source unit and said first polygonal mirror,

wherein the light beams reflected on the surface of the object enter said beam splitter through said second polygonal mirror, said fθ optical system and said first polygonal mirror, said plurality of light beams being split to respective wavelength components by said beam splitter and entering said light receiving unit.

7. The multi-beam color scanning device according to claim 6, wherein said light receiving unit includes a plurality of photo detectors corresponding to the plurality of wavelength components.

8. The multi-beam color scanning device according to claim 7, wherein said fθ optical system includes a decentered fθ lens

which is arranged to be decentered in the second predetermined direction.

9. The multi-beam color scanning device according to claim 1, further comprising:

a mirror system that deflects the laser beams reflected by the object surface to a second reflection surface of said second polygonal mirror, which is different from the surface on which the laser beams passing through said fθ optical system; and

a collecting lens that converges the beams reflected by said second reflection surface on said light receiving unit.

10. The multi-beam color scanning device according to claim 9, wherein said light receiving unit includes a line sensor for each of said plurality of light beams.

11. A multi-beam image scanning device, comprising:

a multi-beam light source unit that emits a plurality of light beams having different wavelengths, the plurality of light beams being aligned in a main scanning direction;

a first polygonal mirror that deflects the plurality of light beams emitted by the multi-beam light source in the main scanning direction;

an fθ optical system, the plurality of light beams deflected by said first polygonal mirror to scan at a substantially constant speed;

a second polygonal mirror that deflects the plurality of light beams passed through said fθ optical system in an auxiliary scanning direction that is perpendicular to the main scanning direction, said second polygonal mirror deflects the plurality of light beams in the auxiliary direction by one line at each main scanning of the plurality of light beams, the plurality of light beams scanning in the main scanning direction and in the auxiliary scanning direction being directed to an object to be measured;

a light receiving unit that receives the plurality of light beams reflected by the object and output signals corresponding to the received light beams; and

a data processing system that processes output signals of said light receiving unit to generate three-dimensional shape information of the object.

12. The multi-beam scanning device according to claim 11, further including:

a horizontal synchronizing signal generating system that detects passage of at least one of the plurality of light beams through a predetermined position in the main scanning direction and generates a horizontal synchronizing signal; and

a vertical synchronizing signal generating system that detects passage of the plurality of light beams through another predetermined position in the auxiliary scanning direction and generates a vertical synchronizing signal,

said data processing system processes the output signals of said light receiving unit in accordance with the horizontal synchronizing signal and the vertical synchronizing signal.

13. The multi-beam scanning device according to claim 12, wherein said horizontal synchronizing signal generating system detects passage of each of the plurality of light beams through the predetermined position in the main scanning direction and generates a horizontal synchronizing signal for each of the plurality of light beams.

14. The multi-beam scanning device according to claim 12, wherein the plurality of light beams include first, second and third light beams having different wavelengths.

15. The multi-beam scanning device according to claim 14, wherein said light source unit comprises first, second and third laser diodes that emit the first, second and third light beams, respectively.

16. The multi-beam scanning device according to claim 15,

wherein the first, second and third light beams are red, green and blue beams, respectively.